

Results of qualitative research on implementation of infection control best practice in European hospitals

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Quantitative

Numbers

11.5% ($p=.3$)



Qualitative

Quantitative

Quotes

Numbers

“They said it was a priority...but then, they actually never showed up, we never saw them here at the bedside...”

11.5% (p=.3)



Qualitative research

Qualitative Research is intended to deeply explore, understand and interpret social phenomena **within its natural setting**.

[...] to explore the why and how of a situation, **not** only what, where, when.

Patton MQ: Qualitative Research and Evaluation Methods. Thousand Oaks, CA, USA: Sage Publications, Inc; 2002.



Qualitative research

[...] rather than adopting a simplified, reductionist view of the subject in order to measure and count the occurrence of states or events, qualitative methods take a holistic perspective which preserves the complexities of human behavior.

Strong PM. The case for qualitative research. Internat J Pharm Pract 1992;1:185.



Qualitative methods aim to **make sense** of, or interpret, phenomena in terms of the meanings people bring to them.



Greenhalgh T, Taylor R: How to read a paper: Papers that go beyond numbers (qualitative research). *BMJ* 1997, 315:740–743.

Qualitative

Complexity
In context
Emerging
Purposeful sampling

Quantitative

Methods
Reductionist
Context independent
A priori
Random, statistical power

Triangulation
Reflexivity
Member checking
Time in the field
Negative cases

Validity

Rigorous
Statistical significance
Confounding/bias exclusion

In parallel
Transcription
Coding
Themes

Analysis

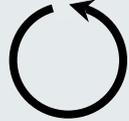
A posteriori
Statistical analysis

Mays NCP. Qualitative research in health care: Assessing quality in qualitative research. BMJ 2000, 320:50–52.

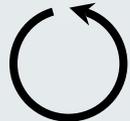


Qualitative

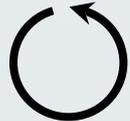
Mental model



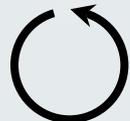
Hypothesis



Research plan



Research



Analysis



Reporting

Quantitative

Mental model



Hypothesis



Research plan



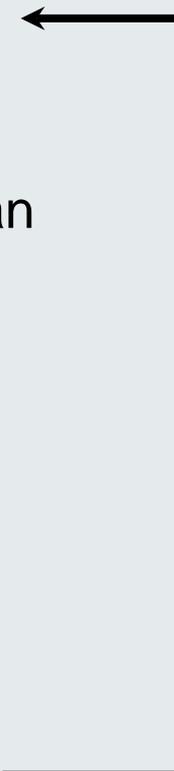
Research



Analysis



Reporting



△ Triangulation

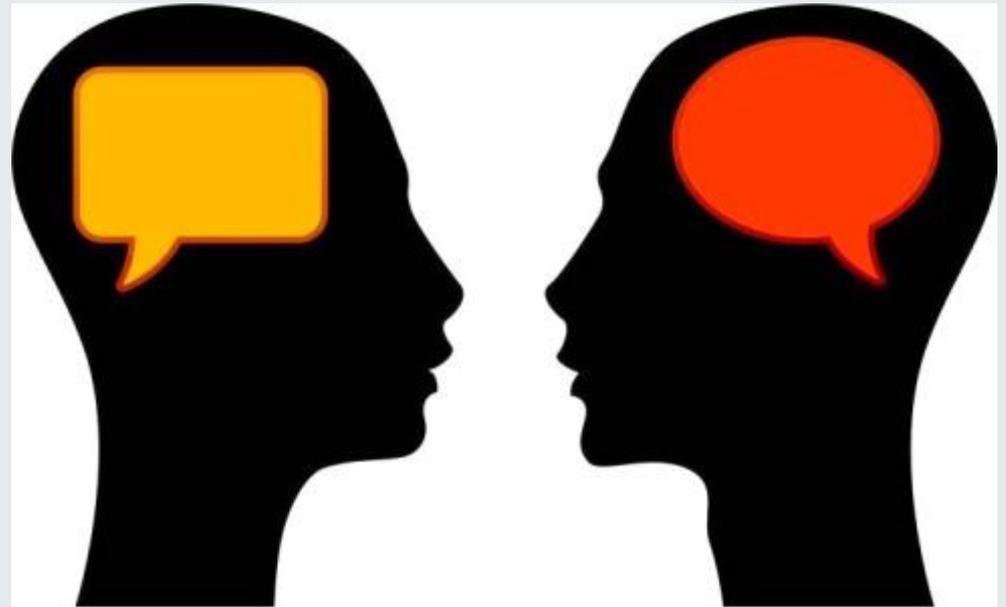


↻ Reflexivity



⇔ Member checking

Submit results of the analysis to participants for verification.



Quality of qualitative research

Box 1 Prompts for appraising qualitative research

- Are the research questions clear?
- Are the research questions suited to qualitative inquiry?
- Are the following clearly described?
 - sampling
 - data collection
 - analysis
- Are the following appropriate to the research question?
 - sampling
 - data collection
 - analysis
- Are the claims made supported by sufficient evidence?
- Are the data, interpretations, and conclusions clearly integrated?
- Does the paper make a useful contribution?

Dixon-Woods M. The problem of appraising qualitative research. Qual Saf Health Care 2004, 13:223–225.

Mixed-methods studies

Qualitative ☯ Quantitative

Box 1 | Qualitative and quantitative methods can be integrated at different stages in a research project

- Design—eg, using qualitative interviews to develop a quantitative measure
- Sampling—eg, using an initial survey to determine or provide a sampling frame for qualitative interviews
- Analysis—eg, using qualitative research to inform priors for bayesian statistical analysis
- Interpretation—eg, integrating the findings in chapter, papers, reports
O’Cathain suggests that health services research tends to be weakest at integrating at the analysis stage.²⁰

Pope C, Mays N: Critical reflections on the rise of qualitative research. BMJ 2009, 339:b3425–b3425.



European Commission - Framework Programme FP7 Health

PROHIBIT

Prevention of Hospital Infections by Intervention & Training

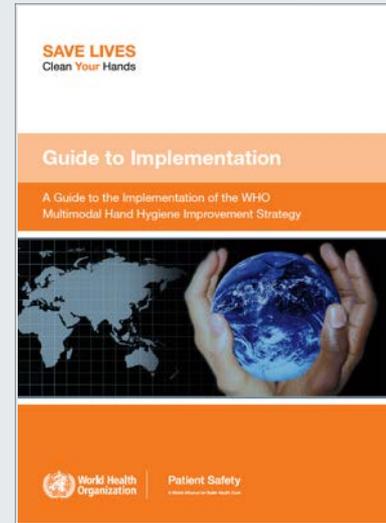
The objective of PROHIBIT is to understand the variations of healthcare-associated infection prevention in Europe and to test the success of a catheter-related bloodstream infection prevention strategy.



Table 1 PROHIBIT work packages and their objectives

Work package (WP)	Title	Objective
WP 1	Project Management	Ensure that the project's main scientific objectives are realized on schedule and on budget.
WP 2	Systematic review of European guidelines for HAI-prevention, surveillance and public HAI reporting	Detect and analyze current guidelines and recommendations in European countries for HAI-prevention of HAI. In addition, this work package will review HAI surveillance activities and schemes and public HAI reporting efforts in European countries.
WP 3	Survey of policy and practice for HAI-prevention in European hospitals	Assess the activity of European hospitals in HAI-prevention using a questionnaire of key determinants in a sample of hospitals in all European countries.
WP 4 (InDepth)	In-depth qualitative investigation of success factors for adoption and implementation of infection prevention practices	Identify facilitators and barriers for successful adoption and implementation of evidence-based infection prevention practices by European hospitals.
WP 5	Randomized effectiveness trial of two interventions to reduce catheter-related blood stream infections	Demonstrate the effectiveness of implementation of two interventions to prevent CRBSI: 1) the WHO hand hygiene promotion strategy and 2) a CRBSI prevention bundle.
WP 6	Synthesis and dissemination	Provide tools for HAI-prevention to be used by stakeholders at multiple levels of health care systems.

CRBSI, catheter-related bloodstream infection; HAI, healthcare-associated infection(s); WHO, World Health Organization.



Restricted use
Clean insertion and maintenance

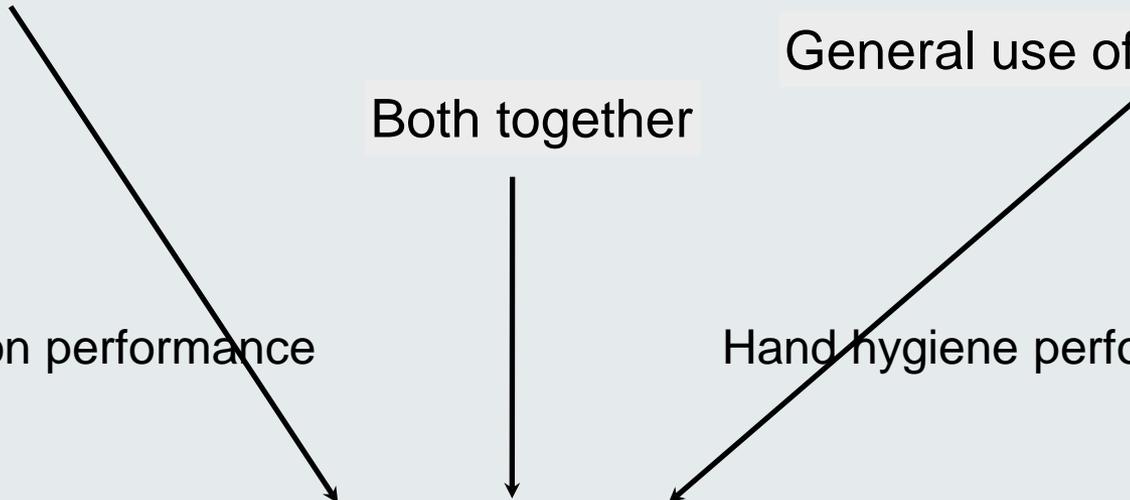
General use of hand hygiene

Both together

CVC insertion performance

Hand hygiene performance

Rate of catheter-related bloodstream infections



Implementation of infection control best practice in intensive care units throughout Europe: a mixed-method evaluation study

Hugo Sax^{1,2*}, Lauren Clack^{1,2}, Sylvie Touveneau¹, Fabricio da Liberdade Jantarada¹, Didier Pittet¹, Walter Zingg¹ and PROHIBIT study group

Abstract

Background: The implementation of evidence-based infection control practices is essential, yet challenging for healthcare institutions worldwide. Although acknowledged that implementation success varies with contextual factors, little is known regarding the most critical specific conditions within the complex cultural milieu of varying economic, political, and healthcare systems. Given the increasing reliance on unified global schemes to improve patient safety and healthcare effectiveness, research on this topic is needed and timely. The 'InDepth' work package of the European FP7 Prevention of Hospital Infections by Intervention and Training (PROHIBIT) consortium aims to assess barriers and facilitators to the successful implementation of catheter-related bloodstream infection (CRBSI) prevention in intensive care units (ICU) across several European countries.

Methods: We use a qualitative case study approach in the ICUs of six purposefully selected acute care hospitals among the 15 participants in the PROHIBIT CRBSI intervention study. For sensitizing schemes we apply the theory of diffusion of innovation, published implementation frameworks, sensemaking, and new institutionalism. We conduct interviews with hospital health providers/agents at different organizational levels and ethnographic observations, and conduct rich artifact collection, and photography during two rounds of on-site visits, once before and once one year into the intervention. Data analysis is based on grounded theory. Given the challenge of different languages and cultures, we enlist the help of local interpreters, allot two days for site visits, and perform triangulation across multiple data sources.

Qualitative measures of implementation success will consider the longitudinal interaction between the initiative and the institutional context. Quantitative outcomes on catheter-related bloodstream infections and performance indicators from another work package of the consortium will produce a final mixed-methods report.

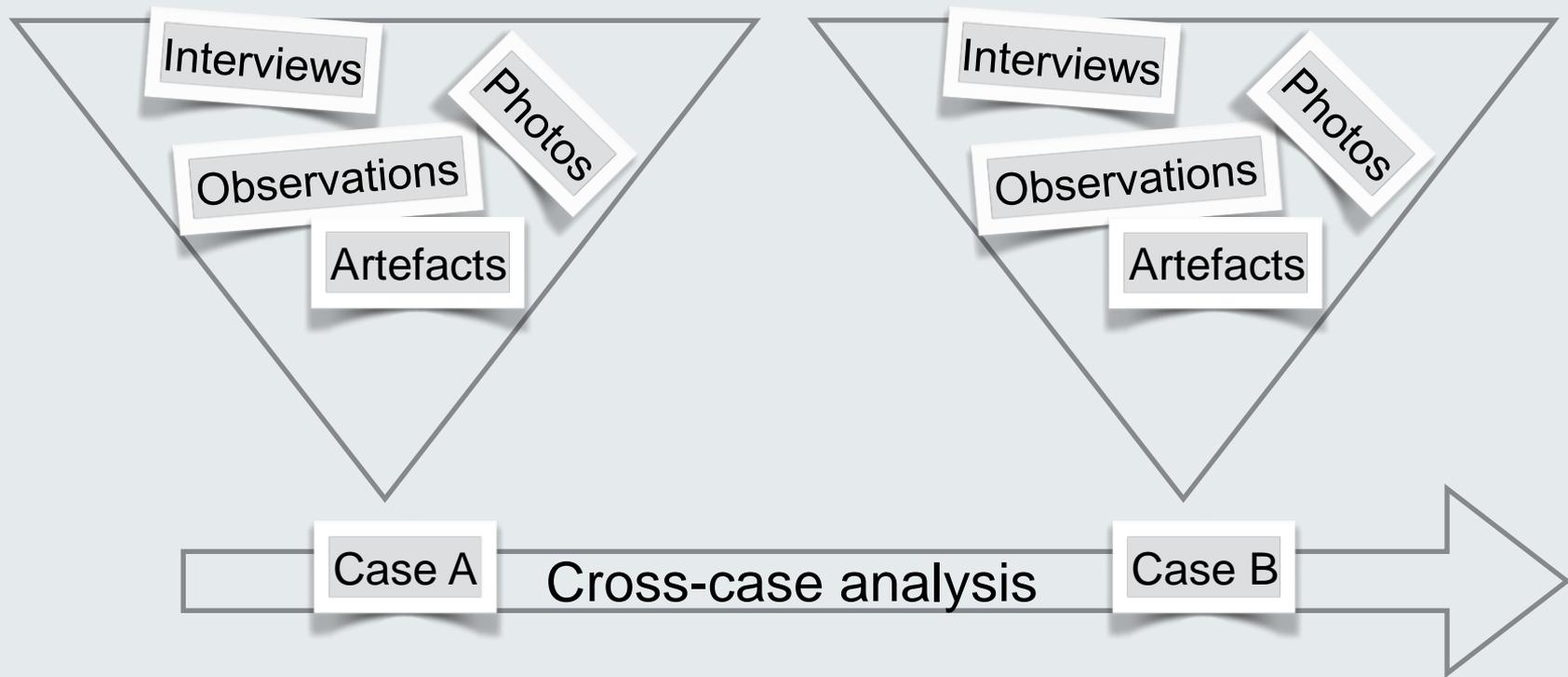
Conclusion: A mixed-methods study of this scale with longitudinal follow-up is unique in the field of infection control. It highlights the 'Why' and 'How' of best practice implementation, revealing key factors that determine success of a uniform intervention in the context of several varying cultural, economic, political, and medical systems across Europe. These new insights will guide future implementation of more tailored and hence more successful infection control programs.

Trial registration: Trial number: PROHIBIT-241928 (FP7 reference number)

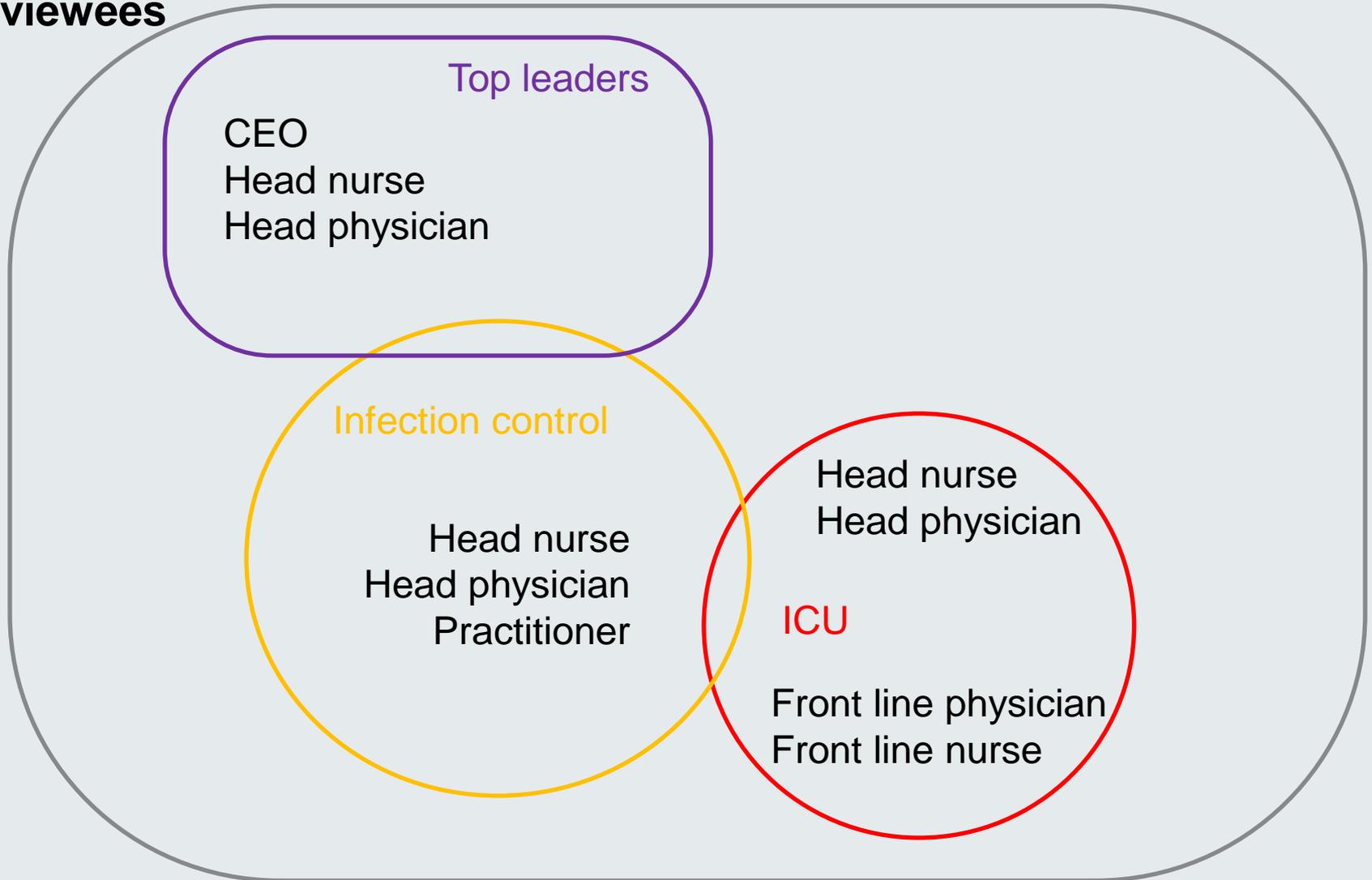
Keywords: Implementation, Infection control, Catheter-related bloodstream infections, Hand hygiene, Intensive care units, Best practice, Organizational culture, Organizational case studies, Organizational innovation, Organizational decision making, Patient safety

Case study method

Case = hospital; Intensive Care Unit



Interviewees



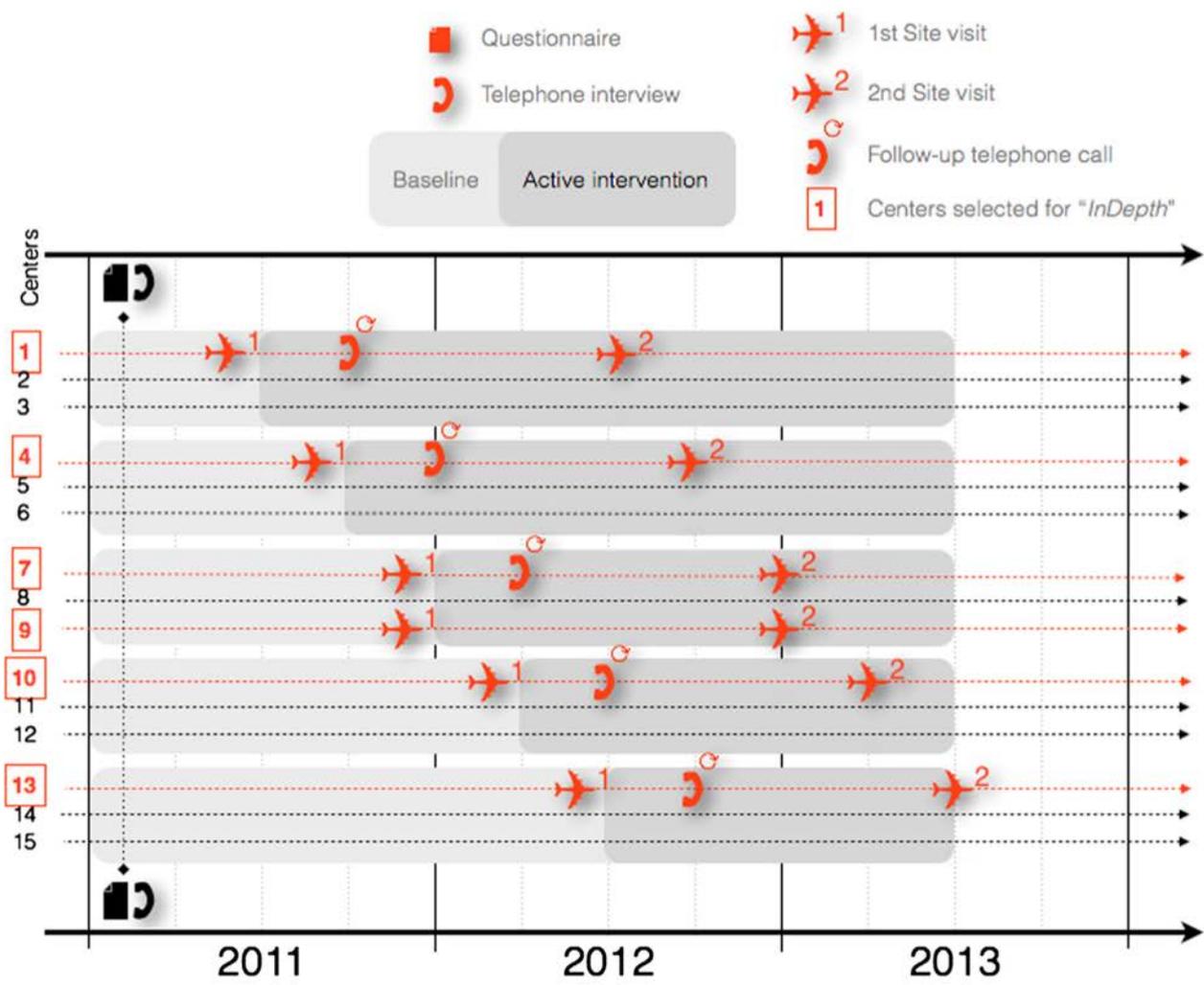
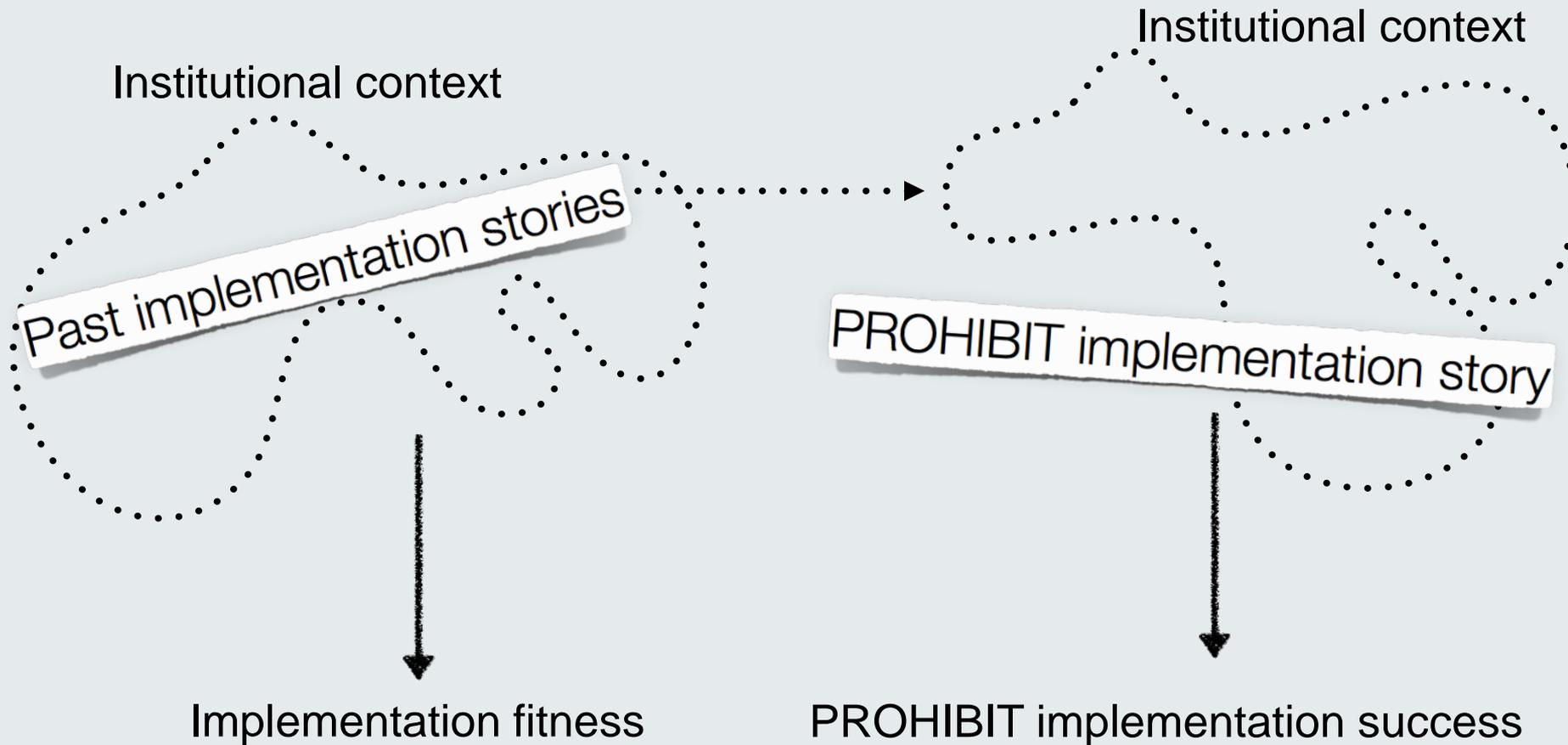


Figure 1 Temporal scheme of study procedures.

'Baseline' visit

'One-Year' visit





Results

12 two-day site visits

129 interviews

6000 pages of verbatim transcripts

41 hours of observations in ICU

photography

artefacts

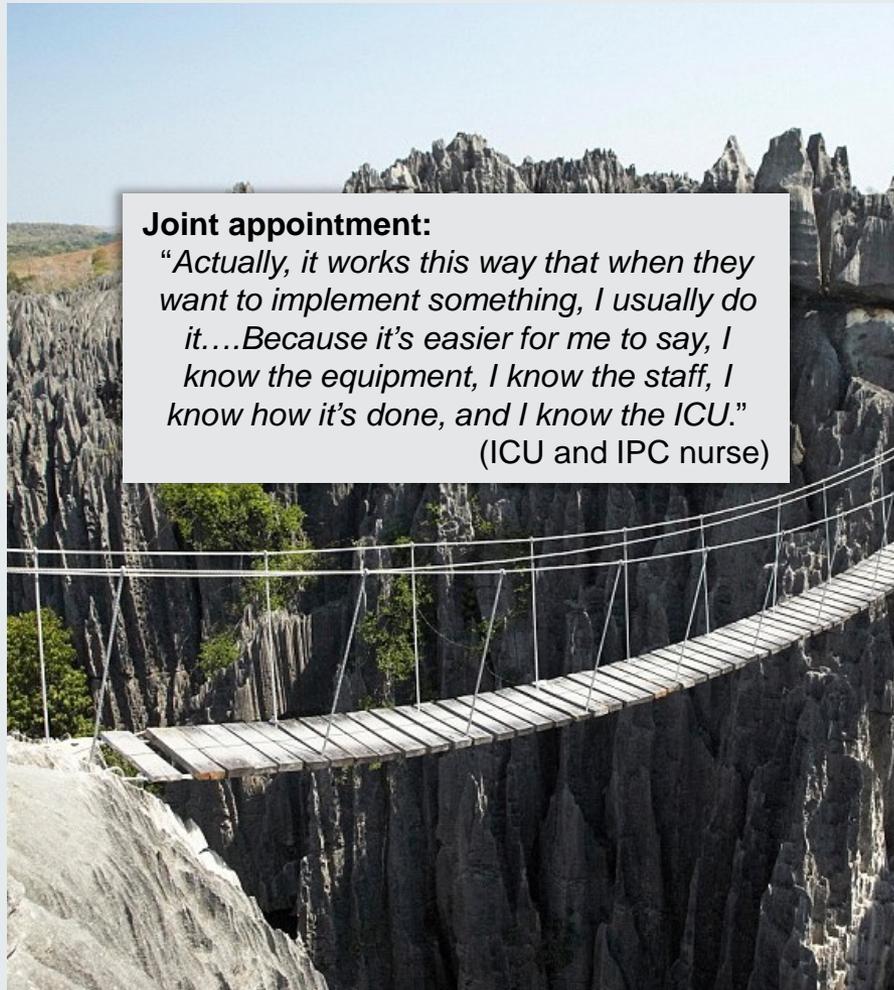
Boundary Spanning



Horizontal vs. Vertical Boundary Spanning

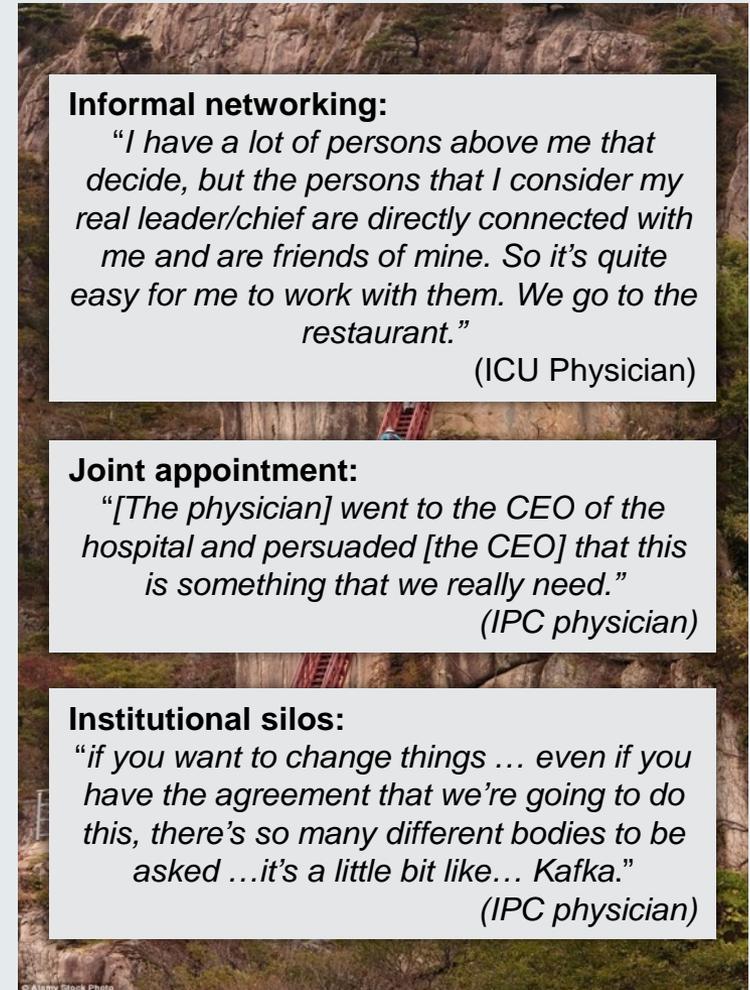


Horizontal vs. Vertical Boundary Spanning



Joint appointment:

“Actually, it works this way that when they want to implement something, I usually do it...Because it’s easier for me to say, I know the equipment, I know the staff, I know how it’s done, and I know the ICU.”
(ICU and IPC nurse)



Informal networking:

“I have a lot of persons above me that decide, but the persons that I consider my real leader/chief are directly connected with me and are friends of mine. So it’s quite easy for me to work with them. We go to the restaurant.”
(ICU Physician)

Joint appointment:

“[The physician] went to the CEO of the hospital and persuaded [the CEO] that this is something that we really need.”
(IPC physician)

Institutional silos:

“if you want to change things ... even if you have the agreement that we’re going to do this, there’s so many different bodies to be asked ...it’s a little bit like... Kafka.”
(IPC physician)

Implementation Fitness



Implementation Fitness

Leadership on board:

“I read the protocol, and to head of department, and said [this is] another intervention study, and this is about the PROHIBIT. This makes sense to me. And he said that it makes sense to him as well because it's the quality improvement, and we did the MOSAR before, and that also led to some quality improvements.”

(IPC Physician)

Existing protocols:

“We actually produced a protocol some years before that time point for CVC insertion, and to have a program that proposed to do research on that topic was very timely... So PROHIBIT has found prepared ground”

(Head Nurse)

Identified champions:

“[The ICU physician] had been involved in the national pilot project of surveillance... that's why he was picked [to participate in PROHIBIT]. You know, why we dealt with him, because he had...supported that project. And we thought it was the natural follow on for him to get involved with this.”

(IPC Physician)



Implementation Fitness



Implementation Fitness

(Perceived) lack of experience:

"I don't think they're really experienced in implementing bundles because we make the bundles."

(ICU Physician)



Disruptive Events



Disruptive Events



Facilitator:

"we had an outbreak of VRE back a couple of months ago... everybody got together and said look, what can we do to improve? [And we] did a big overhaul."

(ICU Nurse)

Barrier:

"... this PROHIBIT project became a little less important and got a bit on the second level of importance, of priority."

(ICU Nurse)

Results summary

- Boundary spanners: individuals who have multiple roles within an organisation, and who traverse institutional boundaries to accelerate change.
 - Inter-organisational and Intra-organisational
 - Horizontal boundary spanning: between departments
 - Vertical boundary spanning: up organisational hierarchy
 - Lack of boundary spanners is a barrier particularly when an organisation has silos – (a.k.a. different departments function independently)
- Implementation fitness: how suitable an organisation is to integrate research findings and evidence into practice.
 - Implementation is like a muscle – the more you flex it, the stronger it becomes!
 - Previous participation in quality improvement initiatives is a facilitator to future initiatives
 - Lack of experience (or perceived lack of experience) may be a barrier

Results summary

- Disruptive events: circumstances that interrupt the routine functioning of an organisation.
 - Disruptive events may increase awareness surrounding IPC issues (e.g. outbreaks)
 - Disruptive events may take priority and shift focus away from IPC issues (e.g. hospital relocation)



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Dr Holly Seale, School of Public Health and Community Medicine, UNSW Australia

August 18 *(Free Teleclass)*
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Prof. William Rutala, University of North Carolina Hospitals

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